

CLAIMS

1. An information recording and reproduction processing apparatus that executes data recording and reproduction processing, comprising:

storing means for data recording;

a recording control process execution unit that generates reproduction management information including at least data recording end position information and executes data recording control for the storing means; and

a reproduction control process execution unit that executes reproduction control processing for data, which is read out from the storing means, on the basis of the reproduction management information, characterized in that

the recording control process execution unit has a constitution for, in the case of data recording processing, generating reproduction synchronization management information indicating that recording processing for data is in progress, associating the reproduction synchronization management information with the reproduction management information, and executing processing for recording the generated reproduction synchronization management information in a directory that is automatically erased at the time of system startup or at the time of system shutdown, and

the reproduction control process execution unit is constituted to, in the case of data reproduction processing,

extract reproduction management information corresponding to reproduction data, execute retrieval processing for reproduction synchronization management information based upon the reproduction management information, judge whether data is being recorded on the basis of presence or absence of reproduction synchronization management information, and execute data reproduction control according to a result of the judgment.

2. An information recording and reproduction processing apparatus according to claim 1, characterized in that

the recording control process execution unit is constituted to execute processing for storing the reproduction synchronization management information in a volatile memory.

3. An information recording and reproduction processing apparatus according to claim 1, characterized in that

the recording control process execution unit is constituted to execute processing for setting a reproduction synchronization management information name, which is set in the reproduction synchronization management information, as a file name that can be identified uniquely from the reproduction management information name, and

the reproduction control process execution unit is constituted to specify a reproduction synchronization

management information name on the basis of the reproduction management information name and execute retrieval processing for reproduction synchronization management information on the basis of the reproduction synchronization management information name.

4. An information recording and reproduction processing apparatus according to claim 1, characterized in that

the information recording and reproduction processing apparatus has an upper layer process execution unit that executes setting processing for the recording control process, the recording control process execution unit is constituted to generate an identifier (ID) with which the reproduction management information can be identified uniquely and output the generated identifier to an upper process execution unit,

the upper layer process execution unit is constituted to execute processing for storing the identifier (ID) in a storage unit and managing the identifier, and

the reproduction control process execution unit is constituted to execute processing for inputting the identifier (ID) from the upper process execution unit and acquiring the reproduction management information on the basis of the identifier (ID).

5. An information recording and reproduction processing

apparatus according to claim 1, characterized in that

the recording control process execution unit is constituted to execute recording of data to be an object of reproduction processing with respect to the storing means constituted by a nonvolatile memory and execute processing for storing the reproduction synchronization management information in a volatile memory different from the storing means.

6. An information recording and reproduction processing apparatus according to claim 1, characterized in that

the reproduction control processing execution unit is constituted to, in the case in which reproduction synchronization management information is detected, judge that data recording processing is in progress, execute control for reproduction processing while confirming an update state of a recording end point in reproduction management information, and, in the case in which a reproduction position reaches the recording end point in the reproduction management information, perform reproduction suspension processing.

7. An information recording and reproduction processing apparatus according to claim 1, characterized in that

the reproduction control process execution unit is constituted to, in the case in which reproduction synchronization

management information is not detected, judge that data recording processing is not in progress, execute reproduction control for data as recorded data, and, in the case in which a reproduction position reaches a recording endpoint in reproduction management information, execute control for shifting to reproduction ending processing.

8. An information recording and reproduction processing apparatus according to claim 1, characterized in that

the reproduction control process execution unit is constituted to, in the case in which reproduction synchronization management information is detected, periodically verify presence or absence of the reproduction synchronization management information, in the case in which the reproduction synchronization management information is erased, execute reproduction control for data as recorded data, and, in the case in which a reproduction position reaches a recording endpoint in reproduction management information, execute control for shifting to reproduction ending processing.

9. An information recording and reproduction processing apparatus that executes data recording and reproduction processing, comprising:

storing means for data recording;

a recording control process execution unit that generates

reproduction management information including at least data recording end position information and executes data recording control for the storing means; and

a reproduction control process execution unit that executes reproduction control processing for data, which is read out from the storing means, on the basis of the reproduction management information, characterized in that

the recording control process execution unit has a constitution for, in the case of data recording processing, executing processing for generating reproduction synchronization management information indicating that recording processing for data is in progress and recording management information having link information of the reproduction synchronization management information and storing the generated reproduction synchronization management information and recording management information in storing means, and

executing retrieval processing for recording management information at the time of system startup, extracting and erasing reproduction synchronization management information on the basis of link information of extracted recording management information, and executing erasing processing for the extracted recording management information, and

the reproduction control process execution unit is constituted to, in the case of data reproduction processing,

extract reproduction management information corresponding to reproduction data, execute retrieval processing for reproduction synchronization management information based upon the reproduction management information, judge whether data is being recorded on the basis of presence or absence of reproduction synchronization management information, and execute data reproduction control according to a result of the judgment.

10. An information recording and reproduction processing apparatus according to claim 9, characterized in that

the recording control process execution unit is constituted to execute recording of data to be an object of reproduction and recording of the reproduction synchronization management information and recording management information with respect to the storing means constituted by a nonvolatile memory.

11. An information recording and reproduction processing apparatus according to claim 9, characterized in that

the recording control process execution unit is constituted to execute processing for setting a reproduction synchronization management information name, which is set in the reproduction synchronization management information, as a filename that can be identified uniquely from the reproduction

management information name, and

the reproduction control process execution unit is constituted to specify a reproduction synchronization management information name on the basis of the reproduction management information name and execute retrieval processing for reproduction synchronization management information on the basis of the reproduction synchronization management information name.

12. An information recording and reproduction processing apparatus according to claim 9, characterized in that

the information recording and reproduction processing apparatus has an upper layer process execution unit that executes setting processing for the recording control process,

the recording control process execution unit is constituted to generate an identifier (ID) with which the reproduction management information can be identified uniquely and output the generated identifier to an upper process execution unit,

the upper layer process execution unit is constituted to execute processing for storing the identifier (ID) in a storage unit and managing the identifier, and

the reproduction control process execution unit is constituted to execute processing for inputting the identifier (ID) from the upper process execution unit and acquiring the

reproduction management information on the basis of the identifier (ID).

13. An information recording and reproduction processing apparatus according to claim 9, characterized in that

the reproduction control processing execution unit is constituted to, in the case in which reproduction synchronization management information is detected, judge that data recording processing is in progress, execute control for reproduction processing while confirming an update state of a recording end point in reproduction management information, and, in the case in which a reproduction position reaches the recording end point in the reproduction management information, perform reproduction suspension processing.

14. An information recording and reproduction processing apparatus according to claim 9, characterized in that

the reproduction control process execution unit is constituted to, in the case in which reproduction synchronization management information is not detected, judge that data recording processing is not in progress, execute reproduction control for data as recorded data, and, in the case in which a reproduction position reaches a recording end point in reproduction management information, execute control for shifting to reproduction ending processing.

15. An information recording and reproduction processing apparatus according to claim 9, characterized in that

the reproduction control process execution unit is constituted to, in the case in which reproduction synchronization management information is detected, periodically verify presence or absence of the reproduction synchronization management information, in the case in which the reproduction synchronization management information is erased, execute reproduction control for data as recorded data, and, in the case in which a reproduction position reaches a recording end point in reproduction management information, execute control for shifting to reproduction ending processing.

16. An information recording processing method for executing data recording processing, characterized by comprising:

a reproduction synchronization management information generation step of, in the case of data recording processing, generating reproduction synchronization management information indicating that recording processing for data is in progress;

an association processing step of associating the reproduction synchronization management information to the reproduction management information; and

a reproduction synchronization management information

recording step of executing processing for recording the reproduction synchronization management information in a directory that is automatically erased at the time of system startup or at the time of system shutdown.

17. An information recording processing method according to claim 16, characterized in that

the reproduction synchronization management information recording step is a step of executing processing for storing the reproduction synchronization management information in a volatile memory.

18. An information recording processing method according to claim 16, characterized in that

the association processing step is a step of executing processing for setting a reproduction synchronization management information name, which is set in the reproduction synchronization management information, as a file name that can be identified uniquely from the reproduction management information name.

19. An information recording processing method according to claim 16, characterized in that

the information recording processing method further comprises:

a step of generating an identifier (ID) with which the reproduction management information can be identified uniquely and outputting the generated identifier to an upper process execution unit; and

a step of storing the identifier (ID) in a storing unit and managing the identifier in the upper layer process execution unit.

20. An information recording processing method for executing data recording processing, characterized by comprising:

a management information generation step of, in the case of data recording processing, generating reproduction synchronization management information indicating that recording processing for data is in progress and recording management information having link information of the reproduction synchronization management information;

a management information recording processing step of storing the generated reproduction synchronization management information and recording management information in storing means; and

a management information erasing step of, at the time of system start up, executing retrieval processing for recording management information, extracting and erasing reproduction synchronization management information on the basis of link information of extracted recording management information, and

executing erasing processing for the extracted recording management information.

21. An information recording processing method according to claim 20, characterized in that

the management information recording processing step executes recording of data to be an object of reproduction processing and recording of the reproduction synchronization management information and recording management information with respect to the storing means constituted by a nonvolatile memory.

22. An information recording processing method according to claim 20, characterized in that

the information recording processing method further comprises:

a step of generating an identifier (ID) with which the reproduction management information can be identified uniquely and outputting the generated identifier to an upper process execution unit; and

a step of storing the identifier (ID) in a storing unit and managing the identifier in the upper layer process execution unit.

23. An information reproduction processing method for

executing data reproduction processing, characterized by comprising:

a reproduction management information extraction step of, in the case of data reproduction processing, extracting reproduction management information corresponding to reproduction data;

a reproduction synchronization management information retrieval step of executing retrieval processing for reproduction synchronization management information that can be identified uniquely from extracted reproduction management information; and

a reproduction control step of executing reproduction control for data being recorded or reproduction control processing for data not being recorded.

24. An information reproduction processing method according to claim 23, characterized in that

a reproduction synchronization management information name set in the reproduction synchronization management information is a file name that is identified uniquely from the reproduction management information name, and

the reproduction synchronization management information retrieval step is a step of specifying a reproduction synchronization management information name on the basis of the reproduction management name and executing retrieval

processing for reproduction synchronization management information on the basis of the reproduction synchronization management information name.

25. An information reproduction processing method according to claim 23, characterized in that

the reproduction control step is a step of, in the case in which reproduction synchronization management information is present, judging that data recording processing is in progress and executing control for reproduction processing while confirming an update state of a recording end point in reproduction management information, and, in the case in which a reproduction position reaches the recording end point in the reproduction management information, executing control processing for performing suspension processing.

26. An information reproduction processing method according to claim 23, characterized in that

the reproduction control step is a step of, in the case in which reproduction synchronization management information is not present, judging that data recording processing is not in progress and executing reproduction control for data as recorded data, and, in the case in which a reproduction position reaches a recording end point in reproduction management information, executing control for shifting to reproduction

ending processing.

27. An information reproduction processing method according to claim 23, characterized in that

the information reproduction processing method further comprises:

a step of, in the case in which reproduction synchronization management information is present, periodically verifying presence or absence of reproduction synchronization management information, in the case in which the reproduction synchronization management information is erased, executing reproduction control for data as recorded data, and, in the case in which a reproduction position reaches a recording end point in reproduction management information, executing control for shifting to reproduction end processing.

28. An information reproduction processing method according to claim 23, characterized in that

the reproduction management information extraction step is a step of inputting an identifier (ID), with which the reproduction management information can be identified uniquely, from an upper process execution unit and executing processing for acquiring the reproduction management information on the basis of the identifier (ID).

29. A computer program for executing data recording processing, characterized by comprising:

a reproduction synchronization management information generation step of, in the case of data recording processing, generating reproduction synchronization management information indicating that recording processing for data is in progress;

an association processing step of associating the reproduction synchronization management information to the reproduction management information; and

a reproduction synchronization management information recording step of executing processing for recording the reproduction synchronization management information in a directory that is automatically erased at the time of system startup or at the time of system shutdown.

30. A computer program for executing data recording processing, characterized by comprising:

a management information generation step of, in the case of data recording processing, generating reproduction synchronization management information indicating that recording processing for data is in progress and recording management information having link information of the reproduction synchronization management information;

a management information recording processing step of

storing the generated reproduction synchronization management information and recording management information in storing means; and

a management information erasing step of, at the time of system start up, executing retrieval processing for recording management information, extracting and erasing reproduction synchronization management information on the basis of link information of extracted recording management information, and executing erasing processing for the extracted recording management information.

31. A computer program for executing data reproduction processing, characterized by comprising:

a reproduction management information extraction step of, in the case of data reproduction processing, extracting reproduction management information corresponding to reproduction data;

a reproduction synchronization management information retrieval step of executing retrieval processing for reproduction synchronization management information that can be identified uniquely from extracted reproduction management information; and

a reproduction control step of executing reproduction control for data being recorded or reproduction control processing for data not being recorded on the basis of presence

or absence of the reproduction synchronization management information.